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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,873	07/14/2003	Hwan Koo Lee	1293.1814	3436

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EXAMINER

RODEE, CHRISTOPHER D

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 01/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/617,873

Applicant(s)

LEE ET AL.

Examiner

Christopher RoDee

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 7/13/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

**DETAILED ACTION*****Claim Objections***

Claims 5 and 6 are objected to because of the following informalities: claim 5 refers to the content of the antioxidant based on "the charge transporting material of said photoreceptor layer". Although it is clear that this claim is requiring a charge transport material there is not clear antecedent basis for "the charge transporting material". The Examiner suggests that "the" be changed to "a" for added clarity. Claim 6 refers to "the antioxidant of the chemical Formula (1)" yet the antioxidant is of the formula (2) in claim 1. This appears to be a typographical error that can be readily corrected by a suitable amendment. Appropriate correction is required.

Claims 8 and 13 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims 8 and 13 state that the photoreceptor is "for a wet developing method". This recitation does not appear to further limit the photoreceptors of claim 8 and 13 because the recitation 1) is an intended use of the photoreceptor and 2) does not provide any additional limitation to the composition, structure, or properties of the photoreceptors. That is, the photoreceptors in the respective base claims have the characteristics recited for the dependent claims. If applicants are of the opinion that the dependent claims do provide a further limitation on the photoreceptors in the base claims they are asked to clarify in the written response.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 3-6, 8, 9, and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 states that  $X_3$  is a  $C_{1-6}$  alkyl and one of the other groups specified immediately after the  $C_{1-6}$  alkyl. It is unclear how the single  $X_3$  can be two groups simultaneously because the general formula (2) shows only a single  $X_3$  group. Clarification is required. Note specification pages 5 and 6 where the  $X_3$  groups are each shown to be alternatives.

Claim 6 is indefinite as presented because the formula (10) is incomplete. There is nothing bonding the two phenolic groups, such as a "Z" group as in claim 2. The claim is also indefinite because this compound does not meet the requirements of Formula (2) in the base claim.

Claim 9 and 14 are indefinite as presented because the device, apparently an apparatus, does not have any structure. A device or apparatus is defined by its structure and the claims as presented are devoid of any structure that would define a device.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 1756

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6 and 8-16 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 07-281456. An English language machine translation of the JP document accompanies this Office action.

The JP document discloses an electrophotographic photoreceptor having a conductive base and a photosensitive layer having a photoconductive material, a binder resin of the Formula I and a cresol compound given by the Formula II (¶¶ [0010] – [0013]; Abstract). The binder resin is a polyester having biphenyl fluorenyl units while the cresol compound meets the requirements of the instant claims noting the methyl group and the substituting tert-butyl groups in the compound of ¶ [0015]. Cresols that are particularly pertinent to the instant claims include 2, 6-di- tert-butyl-p-cresol, 2,6-di-tert-butyl-m-cresol, 2,4-di- tert-butyl-o-cresol, 2,4 di-methyl-6-tert-butyl-phenol, 2,2'-methylenebis (6-tert-butyl-p-cresol), 4,4'-methylenebis (6-tert-butyl-o-cresol), and thio-bis (6-tert-butyl-m-cresol). Example 1 presents a photoreceptor having a conductive drum support and a photoconductive layer with 10 parts of a hydrazone charge transport material, 10 parts of a resin given by the formula 6, and 1 parts of a cresol (2,6-tert-butyl-p-cresol; see formula (9) in claim 6) meeting the formula of the instant claims. The photoconductor of the invention is placed in a laser printer (¶ [0051]).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 1756

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 07-281456 in view of *Handbook of Imaging Materials*. New York: Marcel-Dekker, Inc. (11/2001) pp. 145-164 to Diamond.

The JP document was discussed above. This document does not disclose the specifics of the process cartridge or the image forming apparatus of the instant claims. However, Diamond discloses that image forming apparatus contain a photoreceptor and have means as illustrated in Figure 4.2., such as a charging device (scotoron), a light irradiation device (laser diode), a developing unit, and a transfer device. Alternatively, the photoreceptor can be placed in a process cartridge (Fig. 4.10), which can contain a charging roller, a developing unit, and a cleaning blade.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the photoreceptor of the JP document in an imaging apparatus or a process cartridge as disclosed by Diamond because the JP document forms its photoreceptor for use in the formation of images by an electrophotographic process and Diamond shows that an imaging apparatus and a process cartridge are known in the art for rapid production of images using photoreceptors.

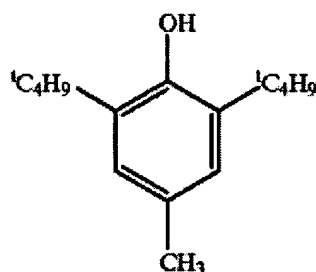
Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katsukawa *et al.* in US Patent 6,187,493 in view of Kanamura *et al.* in US Patent 6,043,334.

Katsukawa discloses a photoreceptor having a conductive support and a photosensitive layer on the support. The photoconductive layer contains a hole and/or electron transferring substance and a polyester resin having a fluorenyl repeating unit given by the formula (1) (Abstract). Additives such as antioxidants can also be used (col. 44, l. 1-4). The photosensitive

Art Unit: 1756

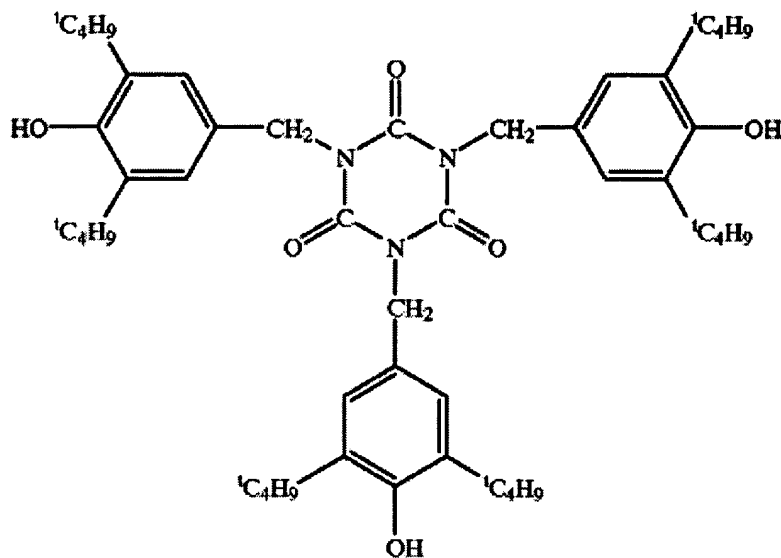
layer can be of either a single layer or a multilayer (col. 42, l. 48 – col. 43, l. 2). Useful supports are in the shape of a drum (col. 44, l. 60-61). Specific polyesters for the binder resin are disclosed in the Reference Examples (cols. 45-48). The photoreceptor is placed in an electrophotographic imaging device in the Examples (see, col. 50, l. 2-8; col. 58, l. 23-34; col. 67, l. 40-46).

Katsukawa does not disclose the antioxidants of the instant claims, but Kanamura does disclose photoreceptors of single layer or dual layer type having a binder resin with repeating fluorenyl units (Abstract; col. 44, l. 8-23). The photoreceptors have a conductive support and a photosensitive layer containing a binder resin (col. 44). The photosensitive layers of the photoreceptor contain antioxidants (col. 196, l. 40). The amount of the antioxidant is from 0.01 to 10 % by weight (col. 198, l. 34-36). Useful antioxidants are disclosed such as

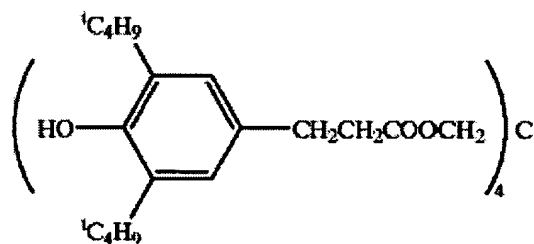


col. 198

Art Unit: 1756

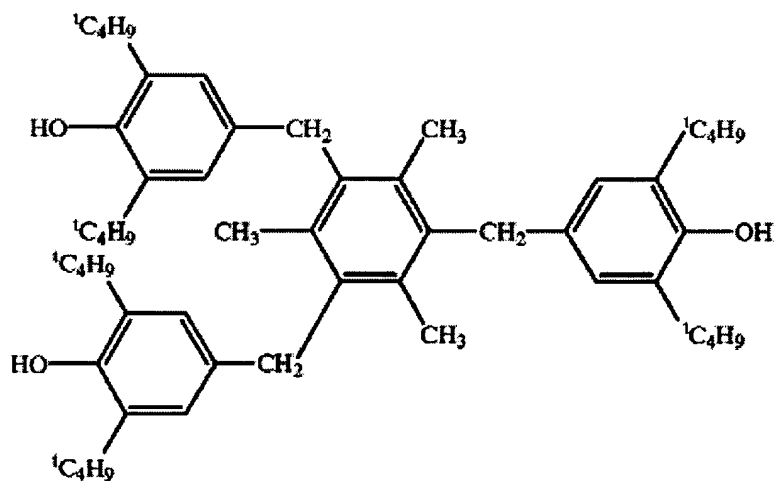


col. 203



col. 203

and





col. 205

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a known photoreceptor antioxidant such as those of Kanamura in the invention of Katsukawa because Katsukawa teaches that antioxidants are usefully included but does not specify any antioxidants. The artisan would look to other references in the art for useful antioxidants and Kanamura discloses a specific group of antioxidants that are known to be effective in photoreceptors. The artisan would have found it obvious to optimize the amounts of the antioxidants in order to obtain the antioxidant effect in the produced photoreceptor.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokota *et al.* in US Patent Application Publication 2004/0009419 in view of Kanamura *et al.* in US Patent 6,043,334.

Yokota discloses a photoreceptor having a conductive support and a photosensitive layer having a biphenylfluorenyl polyester and a stilbene charge transport material (Abstract). Useful polyesters have units given by the formulae (3), (4), and (5) (¶ [0017]). Specific polyesters are disclosed in ¶ [0037]. The photoreceptor can contain antioxidants, such as phenolic compounds (¶ [0049]). Electrophotographic imaging apparatus and process cartridges are present in the document claims. The reference does not disclose the specific antioxidants claimed, but gives direction to phenolic antioxidants as effective.

Kanamura, discussed above, is incorporated here for its disclosure of useful antioxidant materials.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a known photoreceptor antioxidant such as those of Kanamura in the invention of Yokota because Yokota teaches that phenolic antioxidants are usefully included

Art Unit: 1756

but does not specify phenolic antioxidants. The artisan would look to other references in the art for useful antioxidants and Kanamura discloses a specific group of antioxidants that are known to be effective in photoreceptors. The artisan would have found it obvious to optimize the amounts of the antioxidants in order to obtain the antioxidant effect in the produced photoreceptor.

### ***Double Patenting***

Applicant is advised that should claims 16, 18, and 29 be found allowable, claims 15, 17, and 19 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-20 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-18 of copending Application No. 10/459720 (corresponds to US Patent Application Publication 2004/0009419

Art Unit: 1756

discussed above) in view of Kanamura *et al.* in US Patent 6,043,334. The copending application claims a photoreceptor having the requirements of the instant claims except for the presence of antioxidants. The disclosure of the copending application is available under section 102(e). This disclosure teaches that antioxidants are effective in the claimed photoreceptors. The copending claims do not specify the claimed antioxidants but Kanamura does disclose these components, as discussed above.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a known photoreceptor antioxidant such as those of Kanamura in the claimed invention of Yokota because Yokota teaches that phenolic antioxidants are usefully included but does not specify phenolic antioxidants. The artisan would look to other references in the art for useful antioxidants and Kanamura discloses a specific group of antioxidants that are known to be effective in photoreceptors. The artisan would have found it obvious to optimize the amounts of the antioxidants in order to obtain the antioxidant effect in the produced photoreceptor.

This is a provisional obviousness-type double patenting rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher RoDee whose telephone number is 571-272-1388. The examiner can normally be reached on most weekdays from 6:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1756

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



cdr  
10 January 2005

**CHRISTOPHER RODEE**  
**PRIMARY EXAMINER**